

IN THE CLAIMS:

Please **cancel claims 1, 2, and 22-29** without prejudice or disclaimer; **amend claims 3, 6-11, 14, 15, 20, 21, and 30**; and **add claims 31-56** as follows:

1. (Cancelled)

2. (Cancelled)

3. (Currently amended) A method according to claim ~~[[2]]~~ 6, wherein detection of a said sync pattern is qualified by determining that said sync pattern must be preceded by a predetermined pattern of data, such that sync detection is only enabled when said predetermined pattern of data is detected.

4. (Original) A method according to claim 3, wherein detection of said predetermined pattern of data occurring at any point in the reading of the data is accepted and sync detection enabled.

5. (Original) A method according to claim 3, wherein detection of said predetermined pattern of data allows no errors in the detection thereof to be tolerated.

6. (Currently amended) A method ~~according to claim 2,~~
wherein of reading data written on a data-holding medium using a

data reader, said data being arranged into a plurality of data items, each including user data and non-user data, said non-user data including one or more synchronisation fields, said method comprising:

reading data from said data-holding medium; and

detecting at least one synchronisation field by processing said data, said processing including qualifying the detection of said synchronisation field to tolerate one or more errors therein, detection of said synchronisation field (sync) being qualified by determining a sync pattern formed by a part of said sync to be detected, wherein detection of said sync pattern is qualified by determining that said sync pattern must be preceded by a predetermined pattern of data, and enabling sync detection only in response to said predetermined pattern being detected, each data item ~~comprises two user data items in the form of~~ including first and second codeword pairs forming two user data items, and ~~three synchronisation fields,~~ a forward sync field positioned before said first codeword pair, a resync field positioned between said first and second codeword pairs, and a back sync field positioned after said second codeword pair, and detection of [[a]] one of said forward sync ~~pattern~~ fields or [[a]] one of said back sync ~~pattern is~~ fields being qualified by determining that it must be preceded by a predetermined pattern of data.

7. (Currently amended) A method according to claim ~~[[2]]~~ 6, wherein sync pattern detection is qualified by splitting said sync pattern into at least two sync bytes, and determining that ~~detection of said sync pattern has been detected by detecting at least one of said sync bytes constitutes detection of said sync pattern.~~

8. (Currently amended) A method ~~according to claim 7,~~ wherein of reading data written on a data-holding medium using a data reader, said data being arranged into a plurality of data items, each including user data and non-user data, said non-user data including one or more synchronisation fields, said method comprising:

reading data from said data-holding medium; and

detecting at least one synchronisation field by processing said data, said processing including qualifying the detection of said synchronisation field to tolerate one or more errors therein, detection of said synchronisation field (sync) being qualified by determining a sync pattern formed by a part of said sync to be detected,

wherein sync pattern detection is qualified by splitting said sync pattern into at least two sync bytes, and determining that said sync pattern has been detected by detecting at least one of said sync bytes, said sync bytes ~~[[are]]~~ being configurable.

9. (Currently amended) A method according to claim ~~[[7]]~~ 6, wherein said sync bytes are substantially adjacent on said data medium.

10. (Currently amended) A method according to claim ~~[[7]]~~ 6, wherein said sync pattern is split into first and second sync bytes, said first sync byte comprising a first portion of said sync pattern, and said second sync byte comprising the remainder of said sync pattern.

11. (Currently amended) A method ~~according to claim 10,~~
wherein of reading data written on a data-holding medium using a
data reader, said data being arranged into a plurality of data
items, each including user data and non-user data, said non-user
data including one or more synchronisation fields, said method
comprising:

reading data from said data-holding medium; and

detecting at least one synchronisation field by processing
said data, said processing including qualifying the detection of
said synchronisation field to tolerate one or more errors therein,
detection of said synchronisation field (sync) being qualified by
determining a sync pattern formed by a part of said sync to be
detected,

wherein sync pattern detection is qualified by splitting said sync pattern into at least two sync bytes, and determining that said sync pattern has been detected by detecting at least one of said sync bytes, and detection of each said sync byte is carried out using at least one mask register.

12. (Original) A method according to claim **11**, wherein detection of each said sync byte comprises reading data from said data-holding medium into a register, ANDing said contents of said register with said contents of each said mask register, and comparing the result thereof to the AND of the contents of each said mask register and a register containing an ideal sync pattern.

13. (Original) A method according to claim **10**, wherein detection of said second sync byte is allowed to override detection of the first sync byte.

14. (Currently amended) A method ~~according to claim 7,~~
wherein of reading data written on a data-holding medium using a data reader, said data being arranged into a plurality of data items, each including user data and non-user data, said non-user data including one or more synchronisation fields, said method comprising:

reading data from said data-holding medium; and
detecting at least one synchronisation field by processing
said data, said processing including qualifying the detection of
said synchronisation field to tolerate one or more errors therein,
detection of said synchronisation field (sync) being qualified by
determining a sync pattern formed by a part of said sync to be
detected by splitting said sync pattern into at least two sync
bytes, and determining that said sync pattern has been detected by
detecting at least one of said sync bytes, each data item
~~comprises two user data items in the form of~~ including first and
second codeword pairs forming user data items, and ~~three~~
~~synchronisation fields,~~ a forward sync field positioned before
said first codeword pair, a resync field positioned between said
first and second codeword pairs, and a back sync field positioned
after said second codeword pair, and qualifying detection of any
of said sync pattern is qualified patterns by splitting said sync
pattern into two or more said sync bytes.

15. (Currently amended) A method according to claim ~~[[2]]~~ 6,
wherein sync pattern detection is qualified by using a window and
~~determining that~~ considering as a true sync pattern any sync
pattern detected ~~whilst~~ while the window is open ~~is considered as~~
~~a true sync pattern,~~ and considering as a spurious sync pattern

any sync pattern detected ~~whilst~~ while the window is closed ~~is~~
~~considered a spurious sync pattern.~~

16. (Original) A method according to claim 15, wherein said window is opened at a predetermined point.

17. (Original) A method according to claim 15, wherein said window is closed at a predetermined point after the point at which it is opened.

18. (Original) A method according to claim 16, wherein said point at which said window is opened is configurable.

19. (Original) A method according to claim 17, wherein said point at which said window is closed is configurable.

20. (Currently amended) A method ~~according to claim 15,~~
~~wherein~~ of reading data written on a data-holding medium using a
data reader, said data being arranged into a plurality of data
items, each including user data and non-user data, said non-user
data including one or more synchronisation fields, said method
comprising:

reading data from said data-holding medium; and

detecting at least one synchronisation field by processing
said data, said processing including qualifying the detection of
said synchronisation field to tolerate one or more errors therein,

detection of said synchronisation field (sync) being qualified by determining a sync pattern formed by a part of said sync to be detected,

wherein sync pattern detection is qualified by using a window and considering as a true sync pattern any sync pattern detected
~~whilst~~ while the window is open, and considering as a spurious sync pattern any sync pattern detected while the window is closed,
each data item ~~comprises two user data items in the form of~~
including first and second codeword pairs forming user data items,
and ~~three synchronisation fields,~~ a forward sync field positioned before said first codeword pair, a resync field positioned between said first and second codeword pairs, and a back sync field positioned after said second codeword pair, and qualifying detection of a resync pattern ~~is qualified by~~ using said window.

21. (Currently amended) A method according to claim **[[1]] 20**, wherein sync detection takes place when data is read from said data-holding medium, before any further processing is carried out on said data.

22-29. (Cancelled)

30. (Currently amended) A computer readable medium having stored therein instructions for causing a processing unit to execute the method of claim **[[1]] 49**.

31. (New) A method of reading data written on a data-holding medium, said data being arranged into plural data items each including user and non-user data, said non-user data including one or more synchronization fields, each of the synchronization fields including plural synchronization bytes, at least one of which is capable of having different bit configurations, the method comprising:

reading the user and non-user data from said data-holding medium;

comparing at least one of the read synchronization fields with a predetermined bit pattern, the at least one of the synchronization fields including a field capable of having different bit configurations; and

changing the bits of the predetermined bit pattern so they are the same as the bits of the at least one synchronization byte which is capable of having different bit configurations.

32. (New) The method of claim **31**, further including enabling the comparing step to be performed by determining that the at least one synchronization field is preceded by a predetermined pattern of said non-user data.

33. (New) The method of claim **32**, wherein each data item on the medium includes at least one codeword pair forming at least

one user data item, and a forward synchronization field positioned on the medium in the direction of forward reading before said at least one codeword pair, and a back synchronization field positioned on the medium in the direction of forward reading after said at least one codeword pair, the step of detecting including detecting at least one of said forward synchronization patterns, detection of the at least one of said forward synchronization patterns being enabled, during forward reading, by determining that the at least one of said forward synchronization patterns to be detected is preceded by the predetermined pattern of said non-user data.

34. (New) The method of claim **33**, wherein the step of detecting including detecting at least one of the back synchronization patterns, detection of the at least one of said back synchronization patterns being enabled, during backward reading, by determining that the at least one of said back synchronization patterns to be detected is preceded by the predetermined pattern of said non-user data.

35. (New) The method of claim **32**, wherein each data item on the medium includes first and second codeword pairs forming two user data items, and a forward synchronization field positioned on the medium in the direction of forward reading before said first

and second codeword pairs, a back synchronization field positioned on the medium in the direction of forward reading after said first and second codeword pairs, and a resynchronization field positioned on the medium between the first and second codeword pairs, the step of detecting including:

(a) detecting at least one of said forward synchronization patterns, detection of the at least one of said forward synchronization patterns being enabled, during forward reading, by determining that the at least one of said forward synchronization patterns to be detected is preceded by the predetermined pattern of said non-user data;

(b) detecting at least one of the back synchronization patterns, detection of the at least one of said back synchronization patterns being enabled, during backward reading, by determining that the at least one of said back synchronization patterns to be detected is preceded by the predetermined pattern of said non-user data; and

(c) detecting the resynchronization field.

36. (New) A method of writing data onto a data-holding medium and reading data from the data-holding medium, the method comprising:

writing onto the medium plural data items each including user and non-user data, said non-user data including one or more

synchronization fields, each of the synchronization fields including plural synchronization bytes, at least one of which is capable of having different bit configurations;

changing the bit configuration of the at least one synchronization bytes capable of having different bit configurations;

reading the user and non-user data from said data-holding medium;

comparing at least one of the synchronization fields with a predetermined bit pattern, the at least one of the read synchronization fields including the field capable of having different bit configurations; and

changing the bits of the predetermined bit pattern so they are the same as the bits of the at least one synchronization byte which is capable of having different bit configurations.

37. (New) A storage medium comprising:

plural data items each including user and non-user data, each of the plural data items including:

(a) plural user data items;

(b) a forward synchronization field positioned on the medium in the direction of forward reading before said plural user data items;

(c) a back synchronization field positioned on the medium in the direction of forward reading after said plural user data items;

(d) a resynchronization field positioned on the medium between a pair of the user data items;

(e) a predetermined pattern of the first non-user data positioned on the medium so the first non-user data precedes the forward synchronization field in the direction of forward reading; and

(f) a predetermined pattern of second non-user data positioned on the medium so the second non-user data follows the back synchronization field in the direction of forward reading.

38. (New) The storage medium of claim **37**, wherein the plural user data items include a pair of code words.

39. (New) The storage medium of claim **38**, wherein each of the plural data items includes:

(a) between the forward synchronization field and the resynchronization field a header including data identification and a parity field; and

(b) between the resynchronization field and the back synchronization field a header including identification data and a parity field.

40. (New) The storage medium of claim **37**, wherein each of the plural data items includes:

(a) between the forward synchronization field and the resynchronization field a header including data identification and a parity field; and

(b) between the resynchronization field and the back synchronization field a header including identification data and a parity field.

41. (New) The storage medium of claim **37** wherein the storage medium comprises an elongated tape, said fields and patterns of one of said data items being on a single track of the elongated tape.

42. (New) The storage medium of claim **41**, wherein the plural data items are on a single track of the elongated tape.

43. (New) A storage medium comprising:

plural data items each including user and non-user data, each of the plural data items including:

(a) at least one user data item;

(b) a forward synchronization field positioned on the medium in the direction of forward reading before said at least one user data item;

(c) a back synchronization field positioned on the medium in the direction of forward reading after said at least one user data item;

(d) a predetermined pattern of the first non-user data positioned on the medium so the first non-user data precedes the forward synchronization field in the direction of forward reading; and

(e) a predetermined pattern of second non-user data positioned on the medium so the second non-user data follows the back synchronization field in the direction of forward reading.

44. (New) The storage medium of claim **43**, wherein the storage medium comprises an elongated tape, said fields and patterns of one of said data items being on a single track of the elongated tape.

45. (New) The storage medium of claim **44**, wherein the plural data items are on a single track of the elongated tape.

46. (New) A storage medium comprising:

plural data items each including user and non-user data, each of the plural data items including:

(a) plural user data items;

(b) a forward synchronization field positioned on the medium in the direction of forward reading before said plural user data items;

(c) a resynchronization field positioned on the medium between a pair of the user data items;

(d) a predetermined pattern of the first non-user data positioned on the medium so the first non-user data precedes the forward synchronization field in the direction of forward reading; and

(e) one of the plural user data items being positioned on the medium between the forward synchronization field and the resynchronization field, another of the plural user data items being positioned on the medium after the resynchronization field in the direction of forward reading.

47. (New) The storage medium of claim **46**, wherein the storage medium comprises an elongated tape, said fields and patterns of one of said data items being on a single track of the elongated tape.

48. (New) The storage medium of claim **47**, wherein the plural data items are on a single track of the elongated tape.

49. (New) A method of reading a plurality of the plural data items on the storage medium of claim **37**, comprising the steps of:

moving the medium in the forward direction;

while the medium is moving in the forward direction:

(a) enabling reading of the forward synchronization field of a first of the plural data items in response to detection of the presence of the predetermined pattern of the first non-user data;

(b) reading at least one of the user data items of the first data item in response to detection of the read, enabled forward synchronization field of the first data item;

(c) enabling reading of the resynchronization field of a second of the plural data items in response to detection of the presence of the predetermined pattern of the second non-user data and a failure to detect the presence of the forward synchronization field of the second of the plural data items; and

(d) reading one of the user data items of the second data item in response to detection of the read, enabled resynchronization field of the second data item; and

moving the medium in the backward direction;

while the medium is moving in the backward direction:

(a) enabling reading of the back synchronization field of a third of the plural data items in response to detection of the

presence of the predetermined pattern of the second non-user data;
and

(b) reading at least one of the user data items of the third data item in response to detection of the read, enabled back synchronization field of the third data item.

50. (New) A method of reading a plurality of the plural data items on the storage medium of claim **49**, comprising the steps of:

moving the medium in the forward direction;

while the medium is moving in the forward direction:

(a) enabling reading of the forward synchronization field of a first of the plural data items in response to detection of the presence of the predetermined pattern of the first non-user data;

(b) reading at least one of the user data items of the first data item in response to detection of the read, enabled forward synchronization field of the first data item;

(c) enabling reading of the resynchronization field of a second of the plural data items in response to detection of the presence of the predetermined pattern of the second non-user data and a failure to detect the presence of the forward synchronization field of the second of the plural data items; and

(d) reading one of the user data items of the second data item in response to detection of the read, enabled resynchronization field of the second data item.

51. (New) A method of reading a plurality of the plural data items on the storage medium of claim **43**, comprising the steps of:

moving the medium in the forward direction;

while the medium is moving in the forward direction:

(a) enabling reading of the forward synchronization field of a first of the plural data items in response to detection of the presence of the predetermined pattern of the first non-user data; and

(b) reading at least one of the user data items of the first data item in response to detection of the read, enabled forward synchronization field of the first data item; and

moving the medium in the backward direction;

while the medium is moving in the backward direction:

(a) enabling reading of the back synchronization field of a third of the plural data items in response to detection of the presence of the predetermined pattern of the second non-user data; and

(b) reading at least one of the user data items of the third data item in response to detection of the read, enabled back synchronization field of the third data item.

52. (New) A computer readable medium having stored therein instructions for causing a processing unit to execute the method of claim **50**.

53. (New) A computer readable medium having stored therein instructions for causing a processing unit to execute the method of claim **51**.

54. (New) Apparatus for performing the method of claim **49**.

55. (New) Apparatus for performing the method of claim **50**.

56. (New) Apparatus for performing the method of claim **51**.